Human N-Methyl-D-Aspartate Receptor Subunits, Nucleic Acids Encoding Same and Uses Therefor

This application is a continuation-in-part of *div. of 09/648,797 filed Aug. 28, 2000, which is a div. of* United States Serial No. 08/052,449, filed April 20, 1993, *08/231,193 filed Apr 20, 1994 which is a* now pending.

5   The present invention relates to nucleic acids and receptor proteins encoded thereby. Invention nucleic acids encode novel human N-methyl-D-aspartate (NMDA) receptor subunits. The invention also relates to methods for making such receptor subunits and for using the receptor proteins in assays designed to identify and

10   characterize compounds which affect the function of such receptors, e.g., agonists and antagonists of NMDA receptors.

BACKGROUND OF THE INVENTION

The amino acid L-glutamate is a major excitatory

15   neurotransmitter in the mammalian central nervous system. Anatomical, biochemical and electrophysiological analyses suggest that glutamatergic systems are involved in a broad array of neuronal processes, including fast excitatory synaptic transmission, regulation of neurotransmitter

20   releases, long-term potentiation, learning and memory, developmental synaptic plasticity, hypoxic-ischemic damage and neuronal cell death, epileptiform seizures, as well as the pathogenesis of several neurodegenerative disorders. See generally, Monaghan et al., Ann. Rev. Pharmacol.

25   Toxicol. 29:365-402 (1980). This extensive repertoire of functions, especially those related to learning, neurotoxicity and neuropathology, has stimulated recent attempts to describe and define the mechanisms through which glutamate exerts its effects.

30   Currently, glutamate receptor classification schemes are based on pharmacological criteria. Glutamate